IN THE CLAIMS:

1-12. (Canceled)

13. (Withdrawn) A DNA sequence encoding the protein according to any one of claims 1 or 6-8, useful in the diagnosis, treatment or prophylaxis of a disease caused by a coronavirus or related virus.

14-22. (Canceled)

23. (Withdrawn) A method for recombinant production of the protein according to claim 1, comprising culturing a host cell transformed with a DNA molecule which comprises a nucleotide sequence encoding said protein, wherein said nucleotide sequence is in operative association with regulatory sequences capable of regulating the expression of said protein.

24-27. (Canceled)

28. (Withdrawn) The method according to claim 23 wherein said cell is a bacterial cell.

29. (Withdrawn) The method according to claim 23 wherein said cell is an E. coli cell.

30. (Canceled)

31. (Withdrawn) A recombinant DNA molecule comprising a DNA sequence coding for the protein according to any one of claims 1 or 6-8, said DNA sequences in operative association with regulatory sequences capable of directing the expression said protein in host cells.

32-35. (Canceled)

36. (Withdrawn) A vaccine composition comprising an immunogenic amount of the protein according to claim 1 and a carrier.

37. (Canceled)

38. (Withdrawn) The vaccine composition according to claim 36 comprising at least 1-10 feline coronavirus S fusion proteins per ml.

39-43. (Canceled)

44. (Withdrawn) A method for vaccinating a naive animal against Feline Infectious Peritonitis Virus which comprises internally administering to the animal an effective immunogenic amount of the protein according to claim 1.

45. (Canceled)

46. (Withdrawn) A pharmaceutical composition for treating Feline Infectious Peritonitis Virus infection in an infected animal comprising an effective non-toxic amount of the protein according to claim 1 and a pharmaceutical carrier.

47-48. (Canceled)

49. (Withdrawn) A method for distinguishing one coronavirus from another coronavirus, comprising employing the protein according to any one of claims 1 or 6-8, a primer sequence of Table II (SEQ ID NO: 1 through SEQ ID NO: 18), a DNA sequence encoding the protein according to any one of claims 1 or 6-8, or an antibody to the protein according to any one of claims 1 or 6-8.

50. (Withdrawn) An antibody to the protein according to any one of claims 1 or 6-8,

said antibody capable directed to an epitope capable of distinguish FIPV strains and FECV.

51. (Withdrawn) A peptide consisting of an amino acid sequence selected from the group consisting of amino acid residue numbers 1 to 748, 1 to 223, 1 to 360, 93-223, 94 to 223, 97 to 222, 121 to 180, 137 to 151, 213 to 362, 352 to 748, 892 to 1040, and 94 to 748, of an S protein comprising an amino acid sequence as set forth in SEQ ID NO: 22, SEQ ID NO: 26, or SEQ ID NO:32.

52. (Withdrawn) A peptide consisting of an amino acid sequence selected from the group consisting of:

(a) SEQ ID NO: 36;

(b) SEQ ID NO: 38;

(c) SEQ ID NO: 40;

(d) SEQ ID NO: 42;

(e) SEQ ID NO: 44;

(f) SEQ ID NO: 46;

(g) SEQ ID NO: 48;

(h) SEQ ID NO: 50;

(i) SEQ ID NO: 52; and

(j) a peptide from an FIPV S protein which sequence corresponds in size and position to any of sequences (a) - (i).

53. (Withdrawn) A DNA sequence encoding the peptide according to claim 51 or 52.

54. (Withdrawn) A vaccine composition comprising an immunogenic amount of the peptide of claim 51 or 52, and a pharmaceutical carrier.

55. (Withdrawn) An antibody to the peptide according to claim 51 or 52.

56. (Withdrawn) A method for distinguishing one coronavirus from another coronavirus, comprising employing the peptide of claim 51 or 52, a DNA sequence encoding the peptide of claim 51 or 52, or an antibody to the peptide of claim 51 or 52.

57. (New) A protein comprising a peptide from the S protein of a feline coronavirus strain selected from FECV or FIPV, wherein said peptide comprises amino acid numbers 124 - 174, 1-748, 1-223, 1-360, 93-223, 94 -223, 97-222, 121-180, 137-151, and 94-748 of said S protein.

58. (New) The protein according to claim 57, wherein said S protein comprises an amino acid sequence selected from the group consisting of SEQ ID NO: 22, SEQ ID NO: 26 and SEQ ID NO: 32.

59. (New) The protein according to claim 57 or 58, wherein said peptide is fused in frame to a fusion partner protein.